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09/591,565	06/09/2000	Yoichi Kato	KAM1-BL27	3371

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EXAMINER

VANORE, DAVID A

ART UNIT

PAPER NUMBER

2881

DATE MAILED: 09/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/591,565

Applicant(s)

KATO, YOICHI

Examiner

David A Vanore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 06 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2000 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

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***Response to Arguments***

Applicant's arguments filed August 6, 2003 have been fully considered but they are not persuasive.

Regarding the rejection under 35 USC 112, Applicant has failed to correct claim 3. The language of claim 3 remains indefinite because the limitation describing the angle at which the needle is formed is self-referential. The claims describes the angle of orientation of the needle relative to itself, not the discharge section.

Regarding the prior art rejections, Applicant has presented arguments in a traversal of the rejection using Fujisawa and Tsunoda et al. stating that the prior art is directed towards electron sources which heat a filament to cause the emission of electrons, where present invention is directed towards an electron source which causes electron emission in a non-thermal way.

Only claim 21 contains the limitation of electron emission in a non-thermal way. Therefore, claims 1, 2, 4, and 9-17 are finally rejected.

Regarding the amendment to claim 21, the applicant claims applying a DC potential to an electrode to cause the non-thermal emission of electrons. This claim language infers that there is no heat created in the electron emission device during the process of applying the DC potential to the electron emitter. It is well known in the art that the application of a high voltage to a needle electrode, much less the resistor element claimed, will result in the generation of heat during electron emission. The arguments presented by the applicant are not persuasive because the newly added claim language and arguments seem unrealistic. Examiner requests that the Applicant

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produce evidence showing that there is no heat generated in the emission means when a high voltage current is applied thereto. Claims 21 and 22 stand finally rejected.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3, 7, 11, 15, and 18 stand rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims cited above contain the limitation of a discharge electrode section constituted by a needle electrode formed with an acute angle to the longitudinal axis of the needle electrode. This implies that the discharge section is a needle electrode and is formed with an acute angle relative to itself. If the applicant is trying to claim a needle electrode formed at some angle relative to the axis of its supporting member, the axis of the supporting member and the angle of orientation of the needle relative to the support should be recited. The recitation of the above cited claims is indefinite.

***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 21 and 22 are rejected under 35 U.S.C. 101 because the disclosed invention is inoperative and therefore lacks utility.

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Applicant claims an electron emitting device where electrons are forcibly emitted from a needle electrode in a non-thermal manner. Examiner submits that the application of a high potential to a piece of metal will result in the generation of heat. To claim that the electrons are emitted in a non-thermal manner is to imply that there is no heat generated during the emission process in the device. All materials, save superconductors, have a measure of resistance and any application of a potential to a circuit material will result in the movement of the electrons in that material, and thereby, the material as a whole will be heated resulting in a thermal process.

***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, and 17 stand rejected under 35 U.S.C. 102(b) as being clearly anticipated by Fujisawa.

Fujisawa teaches a negatively charged particle emitting apparatus comprising a DC high voltage power source (10), a discharge electrode section (14), and a load resistance section between the DC source and the discharge section to restrict the flow of electrons (20 and Col. 3 Lines 39-50) as recited in claims 1 and 17.

The high voltage wiring recited in claim 2 for connecting the power source to the discharge section is an inherent feature because in order to carry out the Fujisawa invention, one would need to use wiring capable of safely carrying a high voltage signal.

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***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art of the Applicant.

In the response submitted on August 6, 2003, the Applicant admitted that limitations of claims 5-8 are well known in the art. (See page 9 of the response contained in Paper No. 14).

Claim 4 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Fujisawa in view of Tsunoda et al.

Regarding claim 4, Fujisawa teaches all limitations as recited above including a discharge section comprising a pointed filament.

Fujisawa fails to explicitly teach a "needle electrode" as recited in claim 4.

Tsunoda et al. teaches an electron discharge apparatus having a discharging member similar in construction to that of Fujisawa's and further comprising a sharp needle tip (1).

Tsunoda et al. modifies the discharge section of Fujisawa to include a sharp pointed needle.

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a pointed tip on the filament of Fujisawa because the use of a pointed needle electrode is well known in the art to produce a more localized emission point for the discharge of electrons from an electron source and its use is taught by Tsunoda.

Claims 9-16 and 22 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Fujisawa in view of Tsunoda et al.

Claims 9-16 and 22 recite the negatively charged particle emitting apparatus as described above by Fujisawa and Tsunoda et al. duplicated and attached to a common power source via a voltage distribution means having a resistor.

It has been held that the duplication of parts is an obvious modification unless a new and unexpected result is produced. In the instant case, no such result is produced. The claims recite a plurality of emitting devices connected to a common power source. Connecting plural devices to a common power source does not produce a novel or unexpected outcome. In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

Claims 18-20 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Fujisawa and Tsunoda et al.

Regarding claims 18-20, Fujisawa and Tsunoda et al. teach all limitations as applied above, but fail to teach a twenty ohm resistor made of carbon, or the selection of an applied voltage of five thousand volts.

Fujisawa teaches the use of a resistor as shown above, and teaches a power supply capable of supplying up to 100 kV.

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All materials have a resistance, but carbon is conventionally used in the art of electronics to serve as a material in a resistor. Further, the selection of the value of the resistance of the resistor described by Fujisawa or the selection of the applied voltage are required to control the emission of electrons from the tip of Fujisawa, which is taught by Fujisawa (Col. 3). Therefore, Fujisawa suggests that the resistance of resistor (20) and the applied voltage are selectable.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to select the applied voltage or resistance value of a resistor to control the emission of electrons in a negatively charged particle emission apparatus because the Fujisawa teaches the relationship between resistance, applied voltage, and electron emission and suggests that selecting different values will result in different electron emission characteristics.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any



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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A Vanore whose telephone number is 703-306-0246. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Lee can be reached on 703-308-4116. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

dav



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